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Datum/Date

06.08.03

Zeichen/Ref./Réf. 120 788 AN	Anmeldung Nr./Application No./Demande n°/Patent Nr. /Patent No./Brevet n°. 03290323.9-1237-
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire ALCATEL	

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

abstract

title

The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

3

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

ALCATEL IPD ANTWERP
- 7 -08- 2003

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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.CI.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 2002/109075 A1 (ONO AKIHIKO) 15 August 2002 (2002-08-15) * paragraph '0172! - paragraph '0189! *	1,6,8,10	H04L25/02
A	US 5 154 066 A (CHOI DONG-KGOO) 13 October 1992 (1992-10-13) * abstract * * figure 3 *	1,8,9	
D,A	EP 1 067 691 A (CIT ALCATEL) 10 January 2001 (2001-01-10) * the whole document *	1-10	
			TECHNICAL FIELDS SEARCHED (Int.CI.7)
			H04L H03K
The present search report has been drawn up for all claims			
2	Place of search	Date of completion of the search	Examiner
	THE HAGUE	16 July 2003	Koukourlis, S
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 03 29 0323

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-07-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2002109075	A1	15-08-2002	JP CN	2002232271 A 1369967 A		16-08-2002 18-09-2002
US 5154066	A	13-10-1992	JP	4227452 A		17-08-1992
EP 1067691	A	10-01-2001	EP AU CA JP TW US	1067691 A1 3935100 A 2311100 A1 2001053556 A 445701 B 6288576 B1		10-01-2001 04-01-2001 30-12-2000 23-02-2001 11-07-2001 11-09-2001

Extended European Search Report

This application is covered by the extended European search report pilot project at present running within the European Patent Office, applied to all European patent applications filed as first filing and searched on or after 01.07.03. Under this project the EPO issues together with the search report an opinion on whether the application and the invention to which it relates meet the requirements of the EPC. This non-binding opinion is issued free of charge as a service. This opinion may be used as the basis for an informed decision as to whether it is desired to pursue the application further or not.

For further details of this pilot project, the applicant's attention is directed to the Official Journal edition 5/2003. If any further immediate questions or comments arise the EPO Customer Services: +31-70-340 4500 or +49-89-2399 2828 can be contacted.

The examination has revealed that the application or the invention to which it relates appear **not** to meet the requirements of the Convention (see comments on enclosed Form 2906).

If the applicant wishes to continue with this application the examination fee must be paid. Where appropriate amendments can be filed to address the objections raised in the opinion, thus shortening the overall procedure. If no amendments are filed, the opinion will be re-issued as the first official communication under Article 96(2) and Rule 51(2) EPC.

If the examination fee has already been paid and the right to the communication under Article 96(1) EPC has been waived for this application, the first official communication under Article 96(2) and Rule 51(2) EPC will be issued promptly.



The examination is being carried out on the **following application documents**:

Text for the Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR LI

Description, pages:

1-9 as originally filed

Claims, No.:

1-10 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

The following documents (D1-D3) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: US 2002/109075 A1 (ONO AKIHIKO) 15 August 2002 (2002-08-15)
- D2: US-A-5 154 066 (CHOI DONG-KGOO) 13 October 1992 (1992-10-13)
- D3: EP-A-1 067 691 (CIT ALCATEL) 10 January 2001 (2001-01-10)

1. Claim 1 is not supported by the description as required by Article 84 EPC, as its scope is broader than justified by the description and drawings. The reasons therefor are explained below.

It is clear from the description (e.g. pages 1-2) that the present application is related to a device according to the Low Voltage Differential Signalling method. According to the description (paragraph [0005]), the present application relates to a modification of a prior art device (D3) which becomes necessary when supply voltages lower than what was defined in the original LVDS standard are used (i.e. about 1V instead of 2.5V).



Both the present application and the prior art make use of **two** differential pairs (pre-amplifiers), as shown in figures 1 and 2 of the present application. However, claim 1 does not include this feature; it appears that this broadening of the scope of the claim is not justified by the extent of the description and drawings and the contribution to the art (see Guidelines C-III-6.1 and 6.2)

Therefore, this feature should be included in independent claim 1.

Moreover, according to the description (paragraph [0020]) the device of the present application differs from that of the prior art in that the comparator block is no longer present, but is replaced by an offset-reducing block which forces its sole input voltage, being the output voltage of both output terminals of both amplifiers coupled together, to a fixed threshold. These features (which are also recited in claim 2) are essential to the performance of the invention, or, in other words, are necessary for the solution of the problem to which the invention relates.

In addition, the connection of the inputs to the two amplifiers is different than the one of the prior art (see paragraph [0021]), and it is clear from the description that this is not an optional feature, but a feature which is also essential to the performance of the invention.

Since independent claim 1 does not contain these features it does not meet the requirement following from Article 84 EPC taken in combination with Rules 29(1) and (3) EPC that any independent claim must contain all the technical features essential to the definition of the invention (see Guidelines C-III-4.3(ii)).

In order to overcome this objection, the features of claims 2 and 3 should be added to claim 1.

2. The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claims 1, 6, 8 and 10 does not involve an inventive step in the sense of Article 56 EPC.

Differential amplifiers, offset-reducing circuits, buffering blocks and equalisation means are all well-known in the art. Also, D1 discloses a differential amplifier followed by an offset-reducing circuit (see passages cited in the search report) and D2 discloses a device (see figure 2) which comprises a differential amplifier



(ref. 166), means for reducing offset voltages (ref. 164) and also amplification and pulse shaping means (i.e. a buffering block) (ref. 168).

The subject-matter of claim 1 consists merely in the juxtaposition or association of known devices functioning in their normal way and not producing any non-obvious working inter-relationship (See Guidelines, C-IV-Annex-2.1).

Dependent claims 6, 8 and 10 do not appear to contain any additional features which, in combination with the features of claim 1, meet the requirements of the EPC with respect to inventive step.

However, it appears that a new independent claim which would include the features of claims 2 and 3 as suggested above, showing the interconnection between the two differential pre-amplifiers and the offset-reducing block, would provide combined features which would mutually support each other in their effects to such an extent that a new technical result is achieved.

3. The applicant is requested to file new claims which take account of the above comments.

The following points should also be taken into account:

- 3.1 An independent claim should be filed taking account of Rule 29(1) EPC. Those features known *in combination* from the prior art (document D3) should be placed in the preamble (Rule 29(1)(a) EPC) and the remaining features should be included in the characterising part (Rule 29(1)(b) EPC). If, however, the applicant is of the opinion that the two-part form would be inappropriate, then reasons therefor should be provided in the letter of reply.
- 3.2 When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).
- 3.3 The applicant is kindly requested to identify all the amendments carried out and to



indicate the passages of the application as filed on which these amendments are based, so that it can be examined whether the requirements of Article 123(2) EPC are met. These indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed. This information is greatly appreciated by the examining division and it helps to expedite the procedure.